

## MATRIX

Fundación Matrix, Investigación y Desarrollo Sostenible

### Staff

P1 Antón Blanco (Developer – Technical Coordinator)

P2 Ziad Hammouri (Python and Cloud Developer – Technical Coordinator)

P3 Alma Vivas (Developer)

### Summary

Fundación Matrix has contributed with the GeoSpatial use case. Fundación Matrix have completed several stages of EX2. First, we worked in solving some capacity issues related to IBM COS account, extending task reproducibility with Docker, then Fundación Matrix developed a way to download, cleanse and process LiDAR data points with Lithops. We have preprocessed data and advanced with some model building steps. Using Lithops framework Fundación Matrix extracted the Digital Elevation Model (DEM), extracted the Digital Surface Model (DSM), calculated the Canopy Height Model (CHM), and also calculated the Slope and Aspect. Besides these tasks, for model building we applied the k-means clustering method. After a training process, we saved the model. Finally, we were able to load it and predict new images using Lithops framework.

Unfortunately, after carrying out these tasks, the Foundation was unable to continue with the assigned tasks due to repeated personnel withdrawal, and difficulties to replace them, taking the decision to halt all the remaining work transferring it to the URV group.

**Publications** (Total:0 )

**Open source repositories** (Total: 1)

Geospatial <https://github.com/matrix-foundation-cb/Geospatial-Cloudbutton>

**Dissemination activities** (Total: 2)

20 Dec 2020: Presentation of the GeoSpatial use case through the official YouTube channel of the Fundación Matrix. "Proyecto CloudButton: Caso de uso geoespacial".  
<https://youtu.be/KKo8IEBEX0g>

06 Feb 2019: Presentation of CloudButton in Fundación Matrix website. Sharing main objectives and use cases. "PROGRAMA 'HORIZON 2020': La Fundación Matrix participa con aplicaciones para Big Data de tipo geoespacial en el proyecto CloudButton".  
<https://fundacionmatrix.es/la-fundacion-matrix-participa-con-aplicaciones-para-big-data-de-tipo-geoespacial-en-el-proyecto-cloudbutton/>

---

**Exploitation Activities** (Total: 0)

---

**Collaborations** (Total: 1)

- URV and Fundación Matrix collaborated Serverless Geospatial pipelines with Lithops.